

CLAIMS

1. A miniature device comprising:
 - a body having a reaction chamber disposed therein;
 - a resistive heater electrically connected to a power source for
 - 5 applying power to said heater;
 - a temperature sensor disposed on a surface of said body for
 - determining a temperature within said reaction chamber; and
 - an appropriately programmed computer for monitoring said
 - temperature and operating said power source to selectively apply said current
 - 10 across said heater.
2. The miniature device of claim 1, further comprising a second reaction chamber fluidly connected to said reaction chamber.
- 15 3. The miniature device of claim 2, wherein said second reaction chamber comprises a microcapillary electrophoresis device.
4. The miniature device of claim 2, wherein said second reaction chamber has an oligonucleotide array disposed therein, said oligonucleotide
- 20 array including a substrate having a plurality of positionally distinct oligonucleotide probes coupled to a surface of said substrate.
5. The miniature device of claim 1, wherein said body comprises at least first and second planar members, said first planar member having a first
- 25 surface and a well disposed in said first surface, said second planar member having a second surface, said second surface being mated to said first surface whereby said well forms said cavity.
6. The miniature device of claim 5, wherein said temperature sensor
- 30 is deposited on said second surface wherein when said second surface is mated

with said first surface, said temperature sensor on said second surface is positioned within said cavity whereby a temperature at said temperature sensor is substantially the same as a temperature within said cavity.

5 7. The device of claim 1, wherein said reaction chamber has a volume of from about 0.001 μl to about 10 μl .

 8. The device of claim 1, wherein said reaction chamber has a volume of from about 0.01 μl to about 1 μl .

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 9. The device of claim 1, wherein said reaction chamber has a volume of from about 0.05 μl to about 0.5 μl .

 10. The device of claim 1, wherein said temperature sensor comprises
15 a thermocouple having a sensing junction positioned adjacent said cavity, and a reference junction positioned outside of said cavity, said thermocouple being electrically connected to a detector for measuring a voltage across said thermocouple.

20 11. The device of claim 10, wherein said detector for measuring a voltage across said thermocouple measures a DC voltage.

 12. The device of claim 10, wherein said thermocouple comprises a first gold film adjoined to a chromium film as said sensing junction and said
25 chromium film adjoined to a second gold film as said reference junction.

 13. The device of claim 1, wherein said resistive heater comprises a chromium film and said electrical connection comprises two gold leads overlaying said chromium film and being electrically connected to said power
30 source.